

WHAT IS CLAIMED IS:

1 1. A method for providing constraint-based guidance to a
2 designer in a collaborative design environment, the method comprising:

3 receiving signals from designers wherein the signals represent design
4 choices for variables of a design;

5 generating a network of design constraints which represent
6 interactions among the variables of the design;

7 evaluating the network of design constraints to obtain conflict
8 information in response to the signals; and

9 transmitting signals to designers affected by the conflict information
10 to provide constraint-based guidance to the affected designers in the collaborative
11 design environment.

1 2. The method as claimed in claim 1 wherein the conflict
2 information includes feasible or infeasible values for the variables of the design.

1 3. The method as claimed in claim 1 wherein the conflict
2 information includes design constraints associated with the variables of the design.

1 4. The method as claimed in claim 1 wherein the conflict
2 information includes constraint violations associated with the variables of the design.

1 5. The method as claimed in claim 1 wherein the design is an
2 engineering design.

1 6. The method as claimed in claim 1 wherein the design is a
2 complex financial plan.

1 7. The method as claimed in claim 1 wherein the step of
2 evaluating includes the step of applying a constraint propagation algorithm to the
3 network of design constraints to compute the conflict information.

1 8. The method as claimed in claim 1 wherein the design
2 constraints have an arbitrary form.

1 9. The method as claimed in claim 1 wherein the conflict
2 information includes feasible or infeasible values for the variables of the design,
3 design constraints associated with the variables of the design and constraint
4 violations associated with the variables.

1 10. The method as claimed in claim 1 wherein the guidance is
2 constraint-based heuristic support.

1 11. A system for providing constraint-based guidance to a
2 designer in a collaborative design environment, the system comprising:

3 means for receiving signals from designers wherein the signals
4 represent design choices for variables of a design;

5 a design process manager for generating a network of design
6 constraints which represent interactions among the variables of the design;

7 a constraint manager for evaluating the network of design constraints
8 to obtain conflict information in response to the signals; and

9 a notification manager for transmitting signals to designers affected
10 by the conflict information to provide constraint-based guidance to the affected
11 designers in the collaborative design environment.

1 12. The system as claimed in claim 11 wherein the conflict
2 information includes feasible or infeasible values for the variables of the design.

1 13. The system as claimed in claim 11 wherein the conflict
2 information includes design constraints associated with the variables of the design.

1 14. The system as claimed in claim 11 wherein the conflict
2 information includes constraint violations associated with the variables of the design.

1 15. The system as claimed in claim 11 wherein the design is an
2 engineering design.

1 16. The system as claimed in claim 11 wherein the design is a
2 complex financial plan.

1 17. The system as claimed in claim 11 wherein the constraint
2 manager applies a constraint propagation algorithm to the network of design
3 constraints to compute the conflict information.

1 18. The system as claimed in claim 11 wherein the design
2 constraints have an arbitrary form.

1 19. The system as claimed in claim 11 wherein the conflict
2 information includes feasible or infeasible values for the variables of the design,
3 design constraints associated with the variables of the design and constraint
4 violations associated with the variables.

1 20. The system as claimed in claim 11 wherein the guidance is
2 constraint-based heuristic support.